



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: VERSENE™ 220 Crystals Chelating Agent

Issue Date: 04/24/2015

Print Date: 04/27/2015

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: VERSENE™ 220 Crystals Chelating Agent

Recommended use of the chemical and restrictions on use

Identified uses: Chelating agent. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number:

800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 800-424-9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Serious eye damage - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Harmful if swallowed or if inhaled
Causes serious eye damage.

Precautionary statements

Prevention

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Ethylenedinitrilotetraacetic acid, tetrasodium salt, tetrahydrate

This product is a substance.

Component	CASRN	Concentration
-----------	-------	---------------

Tetrasodium Ethylenediaminetetraacetate Tetrahydrate	13235-36-4	99.9%
--	------------	-------

Note

The CAS# 13235-36-4 can also be described for TSCA by CAS# 64-02-8.

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Repeated excessive exposure may aggravate preexisting lung disease. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Fire conditions may cause this product to decompose. Refer to section 10 - Thermal Decomposition.

Unusual Fire and Explosion Hazards: Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Processing this product may generate dusts. Dust explosion hazard may result from forceful application of fire extinguishers.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Use non-sparking tools in cleanup operations. Sweep up. Good housekeeping and controlling of dusts are necessary for safe handling of product. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get in eyes. Do not swallow. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Good housekeeping and controlling of dusts are necessary for safe handling of product. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Do not store in: Opened or unlabeled containers. Zinc. Aluminum and its alloys. Carbon steel. Copper. Copper alloys. Galvanized containers. Nickel. Store in original unopened container. Store in accordance with good manufacturing practices. Minimize sources of ignition, such as static build-up, heat, spark or flame. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. See Section 10 for more specific information.

Storage stability

Shelf life: Use within 24 Month

Storage temperature: -18 - 49 °C (-0 - 120 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

None established

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Solid.
Color	White
Odor	Odorless
Odor Threshold	Not applicable
pH	10.5 - 11.5 1% <i>Literature</i>
Melting point/range	Not applicable
Freezing point	Not applicable to solids
Boiling point (760 mmHg)	Not applicable to solids
Flash point	closed cup Not applicable to solids
Evaporation Rate (Butyl Acetate = 1)	Not applicable to solids
Flammability (solid, gas)	No
Lower explosion limit	Not applicable to solids
Upper explosion limit	Not applicable to solids
Vapor Pressure	< 0.1 mmHg <i>Literature</i>
Relative Vapor Density (air = 1)	Not applicable to solids
Relative Density (water = 1)	Not applicable to solids

Water solubility	500 g/L at 20 °C (68 °F) <i>Measured</i>
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	Not applicable to solids
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	no data available
Oxidizing properties	no data available
Bulk density	45 lb/ft ³ <i>Literature</i>
Molecular weight	452.2 g/mol <i>Literature</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with oxidizing materials. Flammable hydrogen may be generated from contact with metals such as: Aluminum.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Ammonia. Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, 1,780 - < 2,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rabbit, > 5,000 mg/kg Estimated.

Acute inhalation toxicity

Vapors are unlikely due to physical properties. Prolonged excessive exposure to dust may cause adverse effects. Dust may cause irritation of the upper respiratory tract (nose and throat) and lungs.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Essentially nonirritating to skin.

May cause more severe response if skin is abraded (scratched or cut).

May cause more severe response if skin is damp.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Sensitization

For the major component(s):

A similar material did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No signs of respiratory sensitization have been reported.

For the major component(s):

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity

The trisodium salt of EDTA did not cause cancer in laboratory animals.

Teratogenicity

EDTA and its sodium salts have been reported to cause birth defects in laboratory animals only at exaggerated doses that were toxic to the mother. These effects are likely associated with zinc deficiency due to chelation.

Reproductive toxicity

For similar material(s): Limited data in laboratory animals suggest that the material does not affect reproduction.

Mutagenicity

Most data indicate that EDTA and its salts are not mutagenic. Minimal effects reported are likely due to trace metal deficiencies resulting from chelating by EDTA.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Tetrasodium Ethylenediaminetetraacetate Tetrahydrate

Acute inhalation toxicity

Vapors are unlikely due to physical properties. Dust may cause irritation of the upper respiratory tract (nose and throat) and lungs.

LC50, Rat, 4 Hour, Dust, 4.14 mg/l No deaths occurred at this concentration.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Tetrasodium Ethylenediaminetetraacetate Tetrahydrate

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 1,592 mg/l, Other guidelines

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 24 Hour, 610 - 1,033 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Danio rerio (zebra fish), flow-through test, 35 d, Other, > 25.7 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 25 mg/l

Persistence and degradability

Tetrasodium Ethylenediaminetetraacetate Tetrahydrate

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Not applicable

Biodegradation: 90 - 100 %

Exposure time: 28 d

Method: OECD Test Guideline 302A or Equivalent

10-day Window: Fail

Biodegradation: 10 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent
10-day Window: Not applicable
Biodegradation: 0 - 10 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.05 mg/mg

Bioaccumulative potential

Bioaccumulation: No data available for this product.

Mobility in soil

Tetrasodium Ethylenediaminetetraacetate Tetrahydrate

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient(Koc): 1046 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Acute Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Fire	Reactivity
3	1	0

Revision

Identification Number: 101199405 / A001 / Issue Date: 04/24/2015 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.